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ABSTRACT

A random sample of 138 adults was assigned to view one version of a news program in their homes to compare recall of news given by a television newscaster with recall of that provided by a frequently used form of videotex. Both the standard newscast and the cable newspaper gave the viewer no opportunity to select information. News stories were rotated and shown to each subject in four conditions: newscaster with and without a graphic, and videotex with and without a graphic. Both free and aided recall were measured. The findings revealed that both habitual and nonhabitual viewers of television news rememoered more from videotex than from a live newscaster. Persons with more education remembered more from both a newscaster and videotex than did persons of less education, persons of higher income remembered more than did persons of lower income, and persons below 40 years of age recalled more than did older persons. Among subjects with less education, men remembered more from a newscaster than did women. In addition, groups most likely to acquire videotex early (younger, more educated, higher income, male) remembered more from videotex than from a newscaster. (Author/HOD)

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# DEMOGRAPHIC GROUP RECALL OF NEWS FROM VIDEOTEX AND TV NEWSCASTERS

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ABSTRACT

A random sample of 138 persons saw newscasts on TV sets in their homes. News stories were rotated and shown to each subject in four conditions: newscaster with and without a graphic and videotex with and without a graphic. Both free and aided recall were measured.

Both habitual and non-habitual viewers of television news remembered more from videotex than from a live newscaster. Persons with more education remembered more from both a newscaster and videotex than did persons with less education. Persons of higher income remembered more than persons of lower income. Persons below 40 years of age recalled more than older persons. Among subjects with less education, men remembered more from a newscaster than did women. Groups most likely to acquire videotex early (younger, more educated, higher income, male) remembered more from videotex than newscaster.

## Demographic Group Recall of News from Videotex and TV Newscasters

Research has given a discouraging view of the amount of news that television viewers recall.[1] In an exploration of the impact of videotex, an immediate question that arises is: Will this new delivery system result in a better-informed citizenry?

Videotex is used here as a generic term referring to all systems by which TV screens carry lines of type into homes, conveying news, stock-market listings, weather reports, airline and movie schedules, prices of goods, and other information. In some systems viewers can choose what they want to read from a prescribed menu; in other systems they simply accept information in the sequence provided. Some forms of videotex have begun to include graphics that give viewers an idea of a news story's topic roughly as do graphics seen alongside a newscaster's talking head. The videotex format used in this study is the "cable newspaper" in which viewers cannot choose either stories or sequence.

One way to study videotex impact on the electorate is through studying groups that are likely to adopt videotex first. Will such groups be best able to recall information from it? Will the groups that spend most time watching standard TV news be best able to remember news from videotex? Dozier and Rice, summarizing studies of potential videotex adopters, concluded: ". . . the typical (initial) user will be male, white, college educated, between the ages

of 25 and 45, of managerial or professional status, and earning in excess of $30,000 per year."[2] This list of traits must be accepted with some caution because much of the research involved experimental interactive systems rather than the cable newspaper used in this study. But both types of systems involve the recall of lines of text presented on a TV screen. Thus recall of both may involve similar information-processing mechanisms.

This study compares recall from a TV newscaster with recall from a frequently used form of videotex. Both the standard newscast and the cable newspaper give the viewer no opportunity to select information.

The first hypothesis concerns habitual viewers of TV news. Because persons of higher education are among the greatest consumers of TV news,[3] and also among the earliest to acquire videotex receivers, would they have cognitive skills making them better able to absorb information from TV? Salomon found that persons gained cognitive skills as a result of performing tasks involving visual media.[4] Perhaps persons who watch more TV news acquire skills that would make them more adept at gaining information from a talking head. Because of videotex's newness, the habitual TV news viewers might be less adept at gaining information from videotex. Further, Edwardson, Grooms, and Proudlove found that persons who watched TV newscasts three or more nights in a week remembered significantly more from news stories with interesting video than from a talking head, unlike less

frequent viewers.[5] The finding may support Salomon's theory, although other factors such as higher interest in the news could lead to both a high level of TV news watching and higher recall.

Thus we formulated the following hypothesis:

Hypothesis 1: Among habitual viewers of television news, recall will be greater for newscaster than for videotex stories.

Another variable related to information gain from TV news is education. Several studies indicate education is associated with information gain from TV newscasts. Findahl and Hoijer found that the more educated men of their Swedish sample remembered more from newscasts than did less educated women.[6] Stauffer, Frost, and Rybolt found that college students remembered more stories from national network TV news than did persons who had not achieved full literacy and that literates achieved better scores on multiple-choice questions about the news.[7] Jacoby and Hoyer, in a study of TV commercials, program excerpts, and public affairs programs, concluded that ". . . miscomprehension appears to decrease (although not appreciably) as amount of formal education increases." Subjects answered true-false questions, some of which required inferences based on facts in the TV materials.[8] Katz, Adoni, and Parness found that the most educated viewers remembered more stories from a TV newscast than did the less educated.[9] Persons with education beyond high school remembered significantly more

from a TV newscast in a study by Edwardson, Grooms, and Pringle and in another study by Edwardson, Grooms, and Proudlove.[10]

Because of these studies, we formulated the following

Hypothesis 2: Persons with more formal education will have greater recall than persons with less education for newscaster stories and videotex stories.

Another variable expected to be associated with increased recall of both videotex and newscaster stories was income. Similarities in media behavior between persons who are higher in education and in income have been reported by Bower, Greenberg and Dervin, Patterson, and Wade and Schramm.[11] The similarities may result from overlap in the characteristics among individuals. In the sample for the present study income and education approached significance in their correlation (Pearson's $r = .16$, $p = .07$). Thus we would expect persons of higher income to behave like persons with more formal education. Further, Edwardson, Grooms, and Proudlove found that subjects with incomes of $10,000 or above remembered more from a TV newscast than did those with lower incomes.[12] Therefore the following was formulated:

Hypothesis 3: Persons with higher incomes will have greater recall than persons with lower incomes for newscaster stories and videotex stories.

Younger persons also were expected to recall more. The relationship was predicted because of three studies: Jacoby and Hoyer found that what they called "miscomprehension" was lower for persons 18 to 44 than for

older persons.[13] In two other studies researchers found significantly greater TV news recall among subjects younger than 40 years of age than among those older.[14] The present study will provide an indication of whether the relationship holds for videotex as well. The following hypothesis was formulated:

> Hypothesis 4: Younger persons will have greater recall than older persons for newscaster stories and videotex stories.

The relationship of sex to recall is difficult to predict. In their study of TV news information gain, Edwardson, Grooms, and Pringle found that men remembered significantly more than women.[15] Edwardson, Grooms, and Proudlove found, however, that women remembered more than men, although differences were insignificant.[16] Gunter, Furnham, and Gietson reported that teenage British men recalled more than teenage women (especially of violent news).[17] Furnham and Gunter discovered that in Britain male adolescents who watched TV news regularly were more likely than female adolescents to have wide political knowledge.[18] Such a background in public affairs was, according to Findahl and Hoijer, one of the chief predictors of ability to recall information from TV news.[19] If men do acquire more background through following events more closely than women do, men should recall more.

Israel and Robinson reported that men watch news somewhat more than women do.[20] The pattern might change as

some women--particularly, perhaps, more educated women--discard the traditional pattern of news viewing. Findahl and Hoijer found that women of all ages with little formal education recalled only news stories closely related to their status.[21] Men and women of higher education levels may be more similar in their ability to recall both newscaster and videotex stories; they might have broken the traditional pattern found by Findahl and Hoijer. But among men and women with less education, the traditional pattern might prevail. This reasoning led to the following:

> Hypothesis 5: Among subjects with less formal education, men will have greater recall than women for newscaster and videotex stories.

## Method

### Subjects

A random sample of 202 Gainesville, Florida, residents was selected. Of those, 138 agreed to participate and were randomly assigned to view one version of a news program in their homes. To increase the response rate, subjects were asked to check the age category into which they fell, rather than providing their exact age. Of the 137 subjects checking a category, 31.4% were 18-24, 32.8% were 25-39, 19% were 40-60, and 16.8% were older than 60. All subjects checked their sex on the questionnaire; 46.4% were male, and 53.6% were female.[22] The major data collection began in November, 1982, and ended in April, 1983. Procedures were

those recommended by Backstrom and Hursh-César[23] except that to improve representativeness, clustering was not done, and the number of callbacks was increased to a minimum of six.

Materials

Four separate news programs were used in the study. Each contained 17 news stories. Each subject saw only one of the programs. Fourteen stories were delivered to subjects in such a way that each subject saw stories in all four of the following conditions: (1) videotex with black-and-white graphic, (2) videotex without graphic, (3) newscaster with black-and-white graphic, and (4) newscaster without graphic. Stories were rotated so that within the total sample each story was presented in all four conditions. All videotex stories were delivered in a block, and all newscaster stories were delivered in a block. Stories with a graphic alternated with stories delivered without a graphic.[24]

The same black-and-white graphics were used in both videotex and newscaster stories. Graphics were placed in the upper right corner of the screen.

The newscaster read each story in approximately 30 seconds, and each videotex story was on the screen for 30 seconds. Most videotex stories were presented in two screenfuls of information, each of which was seen for 15 seconds. To avoid breaking a sentence in the middle, it was necessary to present a few stories on three screens, each in view for 10 seconds.

All news stories were checked for broadcast style by a professional news director. When the stories were transferred to videotex, it was necessary in a few instances to alter phraseology slightly to avoid breaking a sentence in the middle and completing it in a subsequent screen.

As a first step in preparing the instruments, 24 stories that could be told in 30 seconds were selected from newspapers and the Associated Press wire. Some stories were altered to increase the number of multiple-choice questions that could be derived from them.

Five pretests were conducted.[25] One was to secure news stories of roughly equivalent interest. A second pretest was to secure multiple-choice questions of approximately equal difficulty. Two pretests were to ascertain that the graphics were easily identifiable and did not alone provide answers for the questions. In the final pretest, the newscaster chosen for the study (the senior news anchor at Gainesville's only commercial TV station) was compared to his co-anchor to ascertain whether subjects would recall significantly different amounts from the two men, thus damaging the validity of the comparison between the newscaster and videotex. Retention from the two men did not differ significantly.

Multiple-choice questions were used to measure aided recall for the hypotheses. Six questions dealt with material delivered in each of the following conditions: videotex with graphic, videotex without graphic, newscaster

with graphic, and newscaster without graphic. Other questions concerned subject demographics and behavior (the number of nights each subject had watched an evening television newscast during the preceding week). A statement at the end of the questionnaire informed subjects that some of the news stories were partly untrue.

The questionnaire was designed to measure retention rather than analysis of story content. Questions used specific facts in the news stories and even repeated the exact phrasing in the stories as much as possible. Woodall, Davis, and Sahin have written that one failure of past studies of news information gain has been a confounding of simple retention with deduction and inference-making which can be termed "understanding."[26]

Procedure

Each version of the newscast was recorded on a VHS cassette. Each version lasted approximately 8 minutes for newscaster and videotex combined. A Panasonic color videocassette recorder and a Sony color TV set with a 12-inch screen were taken to each subject's home. After each subject saw the newscast, the interviewer asked which of the news stories the subject remembered (free recall). While the subject responded, the interviewer circled on a sheet of paper the numbers corresponding to each story mentioned. Subjects were not asked to go into depth concerning the stories they recalled. The interviewer waited while subjects recalled stories and asked twice, "Any others?" to

make certain all stories remembered had been mentioned. Then the subjects were given the multiple-choice questions on the news stories (aided recall) and the questions concerning demographics and viewing behavior.

The number viewing each version of the newscast was: Version 1: 38; Version 2: 30; Version 3: 35; Version 4: 35. Data were analyzed with one-tailed *t*-tests.[27] Tests for unequal *n* were used when appropriate. Means for aided recall represent mean percentages of questions answered correctly. Means for free recall represent mean percentages of stories recalled. The percentages were considered more meaningful than raw figures. Free recall measures were based on 14 stories divided into four treatments, so each subject was exposed to two treatments involving free recall of three stories and two treatments with four stories. Rotation of treatments combined with presenting data in percentages should remove bias from the procedure.

## Results

Habitual TV news viewing: The 62 habitual newscast viewers (persons who had watched a TV newscast 3 or more nights during the preceding week) were expected to have acquired cognitive skills making them better able to absorb newscast information. Contrary to prediction, habitual viewers showed significantly better aided recall for videotex than newscaster stories when both had graphics ($p = .006$, $t = -2.60$), and again for videotex over newscaster stories when

both were without graphics ($p$ = .02, $t$ = -2.09). Habitual viewers also showed greater free recall of videotex than newscaster stories with graphics ($p$ = .03, $t$ = -1.94).[28]

The 75 non-habitual news viewers (persons who had watched a TV newscast no more than 2 nights during the preceding week) also showed significantly greater aided recall of videotex than newscaster stories when both had graphics ($p$ < .0001, $t$ = 4.28) and when both were without graphics ($p$ = .05, $t$ = 1.65). (See Table I.)

In twelve comparisons of habitual to non-habitual viewers, neither group seemed superior in recall of videotex or newscaster stories, whether they were delivered with or without graphics and whether retention was measured through free or aided recall. Four of the comparisons measured a combination of all videotex stories (with and without graphics) and a combination of all newscaster stories (with and without graphics).

Education: All twelve comparisons involving subjects of different education levels were significant, as Table II shows. Subjects with at least two years of college showed higher aided recall than did persons with less education (no more than high school and vocational training) for newscaster stories with graphics ($p$ = .007, $t$ = 2.49) and without ($p$ = .0001, $t$ = 3.84) and videotex stories with graphics ($p$ < .0001, $t$ = 4.02) and without ($p$ < .0001, $t$ = 6.08).

Persons with more education also showed higher free recall for newscaster stories with graphics ($p$ = .02, $t$ = 2.08) and without ($p$ = .04, $t$ = 1.79) and videotex stories

with graphics ($p$ = .0007, $t$ = 3.26) and without ($p$ = .0002, $t$ = 3.61). When all newscaster stories were considered as a group, persons with more education showed significantly greater free recall ($p$ = .002, $t$ = 2.90) and aided recall ($p$ = .0001, $t$ = 3.81). For all videotex stories as a group, persons with higher education were consistently superior in both free ($p$ < .0001, $t$ = 4.21) and aided recall ($p$ < .0001, $t$ = 5.73).

Income: The sample was divided evenly between the 63 whose income was $20,000 or more and the 63 whose income was less. Twelve subjects declined to reveal income. Of twelve comparisons, six revealed significantly greater recall for higher-income subjects. They had greater aided recall for videotex stories with graphics ($p$ = .0002, $t$ = 3.68) and without ($p$ = .01, $t$ = 2.29), and for newscaster stories without graphics ($p$ = .04, $t$ = 1.71).

Higher income subjects also had greater free recall for newscaster stories without graphics ($p$ = .02, $t$ = 1.99). In a comparison of all videotex stories, combining those with and without a graphic, persons of higher income had significantly greater aided recall ($p$ = .0006, $t$ = 3.30). In a comparison of all newscaster stories (with and without a graphic), higher income subjects showed greater aided recall ($p$ = .04, $t$ = 1.76). (See Table III.) In all twelve comparisons higher income subjects had greater recall (although in half the comparisons differences were insignificant). This greater recall held for comparisons by

free and aided recall, for both newscaster and videotex stories, with and without graphics, and in combinations of stories with and without graphics.

Age: The sample contained 88 persons aged 39 or younger and 49 who were older. In the twelve comparisons, younger subjects recalled stories better for eight. Younger persons showed greater aided recall for videotex stories with graphics ($p = .0002$, $t = 3.74$) and without ($p = .03$, $t = 1.89$). They also showed greater free recall for newscaster stories with graphics ($p = .02$, $t = 2.07$) and for videotex stories with graphics ($p = .02$, $t = 2.00$) and without ($p = .003$, $t = 2.80$). (See Table IV.)

In comparisons involving a combination of all videotex stories with and without graphics, younger persons showed greater aided ($p = .001$, $t = 3.07$) and free recall ($p = .002$, $t = 2.86$). Younger persons showed greater free recall for a combination of all newscaster stories with and without graphics ($p = .02$, $t = 2.18$). In all twelve comparisons younger persons had greater retention than did older persons.

Sex: In a comparison of only the less educated (18 men and 28 women with no education beyond high school and vocational training) three significant differences were found. (See Table V.) Men had greater free recall for newscaster stories with graphics ($p = .02$, $t = 2.22$) and for all newscaster stories, disregarding whether they were delivered with graphics ($p = .01$, $t = 2.29$). In aided recall of newscaster stories with graphics, men also scored higher

($p$ = .04, $t$ = 1.82). In all twelve comparisons, men had greater recall than women.

Among men and women of higher education level (46 men and 45 women with at least 2 years of college) no significant differences appeared. Further, in twelve comparisons of the sample as a whole, no significant differences between women and men were found.

Variables combined: In several instances those demographic groups most likely to add videotex to their media mix early are those likely to remember more from videotex than a live newscaster. A group of computations was made in which all newscaster stories were compared with all videotex stories, disregarding the presence or absence of graphics. In these computations, persons of higher education experienced greater free recall for videotex than newscaster stories ($p$ = .01, $t$ = 2.65) and also greater aided recall for videotex ($p$ = .0001, $t$ = 5.62). Younger persons showed greater free recall for videotex ($p$ = .02, $t$ = 2.43) and also greater aided recall ($p$ = .0001, $t$ = 5.73). Persons of higher income had greater aided recall for videotex ($p$ = .0001, $t$ = 5.50), but only approached significance in their greater free recall of videotex ($p$ = .06, $t$ = 1.95). Males showed greater aided recall of videotex ($p$ = .0009, $t$ = 3.48) but were insignificantly different in free recall. (See Table VI.)

The only significantly correlated viewer characteristics were age and nights of viewing TV news (Pearson's r = .43, $p$ = .0001).

## Discussion

Some groups likely to learn most from TV news also appear likely to learn most from videotex. The better-educated and younger tend to recall more from both videotex and newscasters. Higher-income individuals also may remember more from newscasters and videotex.

Habitual TV news viewers seem likely to recall videotex better than newscasters. However, non-habitual viewers also had greater aided recall for videotex stories. In twelve direct comparisons of habitual and non-habitual viewers (free and aided recall, newscaster and videotex stories, with and without graphics) no significant differences were found. Thus no evidence was found that habitual TV news viewers acquire cognitive skills that give them an advantage over non-habitual viewers.

The null findings may be compatible with Salomon's result that some cognitive tasks are performed better as a result of exposure to some film techniques. Salomon found that his subjects' abilities improved after seeing multiple zooming into a painting's details or after witnessing an animation in which solid objects arranged themselves in a certain order.[29] Those tasks are different from merely listening to a newscaster who was at times accompanied by a still graphic. Further studies should determine whether subjects learn more from standard TV news programs than from

videotex by comparison of a wider range of news techniques with videotex.

At lower educational levels, men tend to remember more from newscasters than do women. The difference does not hold for videotex, perhaps because those with less education have some difficulty reading videotex. The difference in recall between men and women was not found for either TV or videotex at higher education levels. It may be that women with less education feel that news is "man's business" and leave news to men.

Those most likely to adopt videotex first are also those likely to remember more from videotex than newscasters. Included are the better-educated, younger, higher-income, and males. Such increase in recall could mean that videotex may widen the "knowledge gap" described by Tichenor, Donohue, and Olien[30] between persons at opposite ends of the education and income continuum.

Of course, early adoption of videotex is not the same as greater use. Dozier and Rice, in summarizing studies, found that income and education predicted early adoption but not greater use.[31] Further we cannot expect the precise limits of education, income and age in the studies cited by Dozier and Rice to coincide precisely with the cutting points used in the present study.

It may be that videotex is better remembered because viewers give more effort to material that comes to them through letters than from a voice. Reading is associated

with cognitive effort, as Csikszentmihalyi and Kubey discovered.[32]

It also is possible that the appearance of letters, one-at-a-time and line-by-line, combined with their subsequent disappearance, gives a videotex screen a kind of movement and action that creates attention and aids retention.

Will audiences spend a half-hour reading videotex news stories each evening? Most TV news viewers report being occupied otherwise when viewing.[33] They can absorb a little information from the audio with an occasional glance at the screen. With videotex, the audio is no help at all. Further, videotex is useless to those who find reading difficult or impossible. Four persons chosen for the present study were unable to take part because they were genuinely illiterate.

The present study used a cable newspaper in which viewer interaction and choice of material were impossible. With an interactive system in which viewers constantly choose material, attention would be less divided, and perhaps the pleasure of making free choices will cause viewers to spend longer periods of time with videotex. Judging from the findings, we can say that the ability of videotex to promote greater recall could lead to a better informed citizenry, especially when interactive systems bring greater viewer participation and more undivided attention to videotex news.

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[10]Mickie Edwardson, Donald Grooms, and Peter Pringle, "Visualization and TV News Information Gain," Journal of Broadcasting, 20:373-380 (Summer 1976). Edwardson, Grooms, and Proudlove, pp. 21-22.

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[13]Jacoby and Hoyer, p. 138.

[14]Edwardson, Grooms, and Pringle, pp. 378-380; Edwardson, Grooms, and Proudlove, pp. 21-22.

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[19]Findahl and Hoijer, pp. 11-12.

[20]Israel and Robinson, pp. 102-104.

[21]Findahl and Hoijer, p. 12.

[22]The sample contained approximately 1% more women than does the U.S. population as a whole, according to 1982 census figures. If the sample is divided at $20,000 household income, it departed from the national income estimates by less than 3%. The sample overrepresented persons between the ages of 18 and 24 and persons of higher education levels. U.S. Department of Commerce, Bureau of the Census, Statistical Abstract of the United States, 1985 (Washington, D.C.: U.S. Government Printing Office, 1984).

[23]Charles H. Backstrom and Gerald Hursh-Cesar, Survey Research, 2nd Ed. (New York: John Wiley and Sons, 1981).

[24]Each of the four news programs contained three added stories designed to evaluate the impact of crawls. The hypotheses concerning crawls are not part of this paper. They and other hypotheses comparing videotex and newscaster from an information-processing perspective are dealt with in: Mickie Edwardson, Kurt Kent, and Maeve McConnell, "Television News Information Gain from Videotex vs. a Talking Head, Journal of Broadcasting & Electronic Media (in press).

[25]All pretests used students in the University of Florida College of Journalism and Communications. Pretest 1: Subjects ranked 24 news stories on a semantic differential-type scale ("Interesting . . . boring"). The three most boring and most interesting stories were omitted so stories would be of roughly equivalent interest. Pretest 2: Subjects heard the newscaster read the stories without graphics or videotex. Subjects answered multiple-choice questions on the stories. Questions answered by fewer than 25% of the subjects or more than 75% were omitted, to result in questions of roughly equal difficulty. Pretest 3: To ascertain that graphics would be immediately clear, subjects were shown the graphics and identified them. Pretest 4: Subjects saw the graphics and tried to answer the multiple-choice questions to ensure that the graphics alone did not provide the answers. Pretest 5: To ascertain whether the study's newscaster was typical in the amount of retention he would evoke, he was compared with his co-anchor at the TV station. Two classes were randomly split and re-combined. Each group saw one newscaster reading stories without graphics. The two groups did not differ significantly in aided recall of the same stories. The KR-20 reliability coefficient for the four groups of six questions used in testing hypotheses is .71.

[26]W. Gill Woodall, Dennis K. Davis and Haluk Sahin, "From the Boob Tube to the Black Box: Television News Comprehension from an Information Processing Perspective," in Ellen Wartella, D. Charles Whitney and Sven Windahl, eds., Mass Communication Review Yearbook, 4:173-194 (Beverly Hills: Sage Publications, 1983).

[27]For two reasons we considered experimentwise error an insignificant problem. First, most comparisons were independent of one another, and the independent variables in the experiment were also independent of one another. Second, the t-test is highly robust. Given the alpha level used, it seems unlikely that the number of comparisons made would result in erroneous conclusions.

We thought that a series of t-tests, at this initial stage, would give clearer and more straightforward results than would a multivariate analysis.

[28]A minus sign on a *t* value indicates that the result was in the direction opposite to that predicted. The probability level given is that which would have been attained had the prediction been made in the direction obtained.

[29]Salomon, pp. 408, 413.

[30]P. J. Tichenor, G. A. Donohue, and C. N. Olien, "Mass Media Flow and Differential Growth in Knowledge," Public Opinion Quarterly, 34:159-170 (Summer 1970).

[31]Dozier and Rice, pp. 115-117.

[32]Mihaly Csikszentmihalyi and Robert Kubey, "Television and the Rest of Life: A Systematic Comparison of Subjective Experience," Public Opinion Quarterly, 45:317-328 (Fall 1981).

[33]Edwardson, Grooms and Proudlove, p. 23.

TABLE I
RETENTION FROM NEWSCASTER AND VIDEOTEX BY HABITUAL AND NON-HABITUAL TV NEWS VIEWERS

| Condition | Videotex/ Newscaster | Mean % Correct | Std. Dev. | t | P |
|---|---|---|---|---|---|
| HABITUAL TV NEWS VIEWERS (N = 62) | | | | | |
| FREE RECALL | | | | | |
| With Graphics | Newscaster | 25.8 | 25.3 | -1.94 | .03 |
| | Videotex | 33.5 | 30.4 | | |
| AIDED RECALL | | | | | |
| With Graphics | Newscaster | 46.0 | 27.3 | -2.60 | .006 |
| | Videotex | 55.9 | 30.0 | | |
| No Graphics | Newscaster | 48.1 | 28.0 | -2.09 | .02 |
| | Videotex | 55.6 | 34.5 | | |
| NON-HABITUAL TV NEWS VIEWERS (N = 75) | | | | | |
| AIDED RECALL | | | | | |
| With Graphics | Newscaster | 44.0 | 24.6 | 4.28 | <.0001 |
| | Videotex | 57.3 | 28.0 | | |
| No Graphics | Newscaster | 44.0 | 27.5 | 1.65 | .05 |
| | Videotex | 49.6 | 28.6 | | |

Probability values are one-tailed.

TABLE II
COMPARISONS OF HIGH AND LOW EDUCATION VIEWERS FOR NEWSCASTER AND VIDEOTEX

| Condition | Education | Mean % Correct | Std. Dev. | t | P |
|---|---|---|---|---|---|
| | | NEWSCASTER | | | |
| FREE RECALL | | | | | |
| All Stories | H.S. or Less | 20.2 | 14.9 | 2.90 | .002 |
| | Above H.S. | 29.4 | 18.6 | | |
| Stories with Graphics | H.S. or Less | 22.6 | 22.5 | 2.08 | .02 |
| | Above H.S. | 32.1 | 26.5 | | |
| Stories without Graphics | H.S. or Less | 18.7 | 20.9 | 1.79 | .04 |
| | Above H.S. | 26.5 | 25.5 | | |
| AIDED RECALL | | | | | |
| All Stories | H.S. or Less | 35.5 | 20.2 | 3.81 | .0001 |
| | Above H.S. | 50.4 | 22.2 | | |
| Stories with Graphics | H.S. or Less | 37.3 | 27.5 | 2.49 | .007 |
| | Above H.S. | 48.7 | 24.1 | | |
| Stories without Graphics | H.S. or Less | 33.7 | 24.5 | 3.84 | .0001 |
| | Above H.S. | 52.0 | 27.3 | | |
| | | VIDEOTEX | | | |
| FREE RECALL | | | | | |
| All Stories | H.S. or Less | 20.5 | 17.5 | 4.21 | <.0001 |
| | Above H.S. | 35.9 | 21.5 | | |
| Stories with Graphics | H.S. or Less | 24.8 | 24.1 | 3.26 | .0007 |
| | Above H.S. | 40.8 | 28.4 | | |
| Stories without Graphics | H.S. or Less | 16.3 | 21.4 | 3.61 | .0002 |
| | Above H.S. | 32.0 | 25.2 | | |
| AIDED RECALL | | | | | |
| All Stories | H.S. or Less | 37.7 | 24.6 | 5.73 | <.0001 |
| | Above H.S. | 63.0 | 24.3 | | |
| Stories with Graphics | H.S. or Less | 43.5 | 27.8 | 4.02 | <.0001 |
| | Above H.S. | 63.4 | 27.1 | | |
| Stories without Graphics | H.S. or Less | 31.9 | 28.5 | 6.08 | <.0001 |
| | Above H.S. | 62.6 | 27.7 | | |

N: H.S. or Less = 46
Above H.S. = 91
Probability values are one-tailed.

TABLE III
COMPARISONS OF HIGH AND LOW INCOME VIEWERS FOR NEWSCASTER AND VIDEOTEX

| Condition | Income | Mean % Correct | Std. Dev. | t | P |
|---|---|---|---|---|---|
| FREE RECALL | | | | | |
| Newscaster without Graphics | Low | 20.1 | 24.0 | 1.99 | .02 |
| | High | 28.8 | 25.3 | | |
| AIDED RECALL | | | | | |
| All Newscaster Stories | Low | 42.5 | 23.8 | 1.76 | .04 |
| | High | 49.5 | 20.7 | | |
| Newscaster without Graphics | Low | 42.6 | 30.9 | 1.71 | .04 |
| | High | 51.1 | 24.1 | | |
| All Videotex Stories | Low | 47.9 | 28.5 | 3.30 | .0006 |
| | High | 63.2 | 23.5 | | |
| Videotex with Graphics | Low | 48.4 | 30.5 | 3.68 | .0002 |
| | High | 66.4 | 24.0 | | |
| Videotex without Graphics | Low | 47.4 | 33.4 | 2.29 | .01 |
| | High | 60.1 | 28.6 | | |

N: Low Income = 63
High Income = 63

Probability values are one-tailed.

TABLE IV
RETENTION BY YOUNGER AND OLDER VIEWERS OF
NEWSCASTER AND VIDEOTEX

| Condition | Age | Mean % Correct | Std. Dev. | t | P |
|---|---|---|---|---|---|
| | | NEWSCASTER | | | |
| FREE RECALL | | | | | |
| All Stories | Younger | 28.7 | 16.8 | 2.18 | .02 |
| | Older | 21.9 | 19.1 | | |
| With Graphics | Younger | 32.3 | 24.6 | 2.07 | .02 |
| | Older | 23.0 | 26.4 | | |
| | | VIDEOTEX | | | |
| FREE RECALL | | | | | |
| All Stories | Younger | 34.6 | 20.2 | 2.86 | .002 |
| | Older | 23.9 | 22.3 | | |
| With Graphics | Younger | 38.9 | 25.9 | 2.00 | .02 |
| | Older | 29.1 | 30.5 | | |
| Without Graphics | Younger | 31.1 | 24.7 | 2.80 | .003 |
| | Older | 18.9 | 23.9 | | |
| AIDED RECALL | | | | | |
| All Stories | Younger | 59.7 | 25.8 | 3.07 | .001 |
| | Older | 45.2 | 27.3 | | |
| With Graphics | Younger | 63.3 | 27.6 | 3.74 | .0002 |
| | Older | 44.9 | 27.5 | | |
| Without Graphics | Younger | 56.1 | 29.5 | 1.89 | .03 |
| | Older | 45.6 | 34.0 | | |

N: Younger = 88
Older = 49

Probability values are one-tailed.

TABLE V
RETENTION OF NEWSCASTER AND VIDEOTEX BY MEN AND WOMEN
AT LOWER EDUCATION LEVELS

| Condition | Sex | Mean % Correct | Std. Dev. | t | P |
|---|---|---|---|---|---|
| FREE RECALL | | | | | |
| All Newscaster Stories | Men | 26.2 | 13.2 | 2.29 | .01 |
| | Women | 16.3 | 14.9 | | |
| Newscaster with Graphics | Men | 31.5 | 19.9 | 2.22 | .02 |
| | Women | 17.0 | 22.6 | | |
| AIDED RECALL | | | | | |
| Newscaster with Graphics | Men | 46.3 | 30.5 | 1.82 | .04 |
| | Women | 31.5 | 24.1 | | |

N: Men = 18
Women = 28

Probability values are one-tailed.

TABLE VI

RETENTION OF NEWSCASTER AND VIDEOTEX AMONG GROUPS MOST LIKELY TO ADOPT VIDEOTEX EARLY

| Condition | N | Medium | Mean % Correct | Std. Dev. | t | P |
|---|---|---|---|---|---|---|
| HIGH EDUCATION | 91 | | | | | |
| Free Recall | | Newscaster | 29.4 | 18.6 | 2.65 | .01 |
| | | Videotex | 36.0 | 21.5 | | |
| Aided Recall | | Newscaster | 50.4 | 22.2 | 5.62 | .0001 |
| | | Videotex | 63.0 | 24.4 | | |
| YOUNGER | 88 | | | | | |
| Free Recall | | Newscaster | 28.7 | 16.8 | 2.43 | .02 |
| | | Videotex | 34.6 | 20.2 | | |
| Aided Recall | | Newscaster | 46.9 | 21.6 | 5.73 | .0001 |
| | | Videotex | 59.7 | 25.8 | | |
| HIGHER INCOME | 63 | | | | | |
| Free Recall | | Newscaster | 29.3 | 18.9 | 1.95 | .06 |
| | | Videotex | 35.1 | 22.3 | | |
| Aided Recall | | Newscaster | 49.5 | 20.7 | 5.50 | .0001 |
| | | Videotex | 63.2 | 23.5 | | |
| MALE | 64 | | | | | |
| Free Recall | | Newscaster | 27.9 | 17.2 | .99 | .33 |
| | | Videotex | 30.6 | 21.0 | | |
| Aided Recall | | Newscaster | 49.0 | 22.7 | 3.48 | .0009 |
| | | Videotex | 58.3 | 27.4 | | |

Probability values are two-tailed.

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